TITLE: CARDIAC RHYTHM MANA⬛MENT SYSTEM AND METHOD USING TIME BETWEEN ⬛RAL VALVE CLOSURE AND AORTIC EJECTION
INVENTORS NAME: William C. Lincoln et al.
SERIAL NO.: 10/099,865

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Fig.1

TITLE: CARDIAC RHYTHM MANAGEMENT SYSTEM AND METHOD USING TIME BETWEEN MITRAL VALVE CLOSURE AND AORTIC EJECTION
INVENTORS NAME: William C. Lincoln et al.
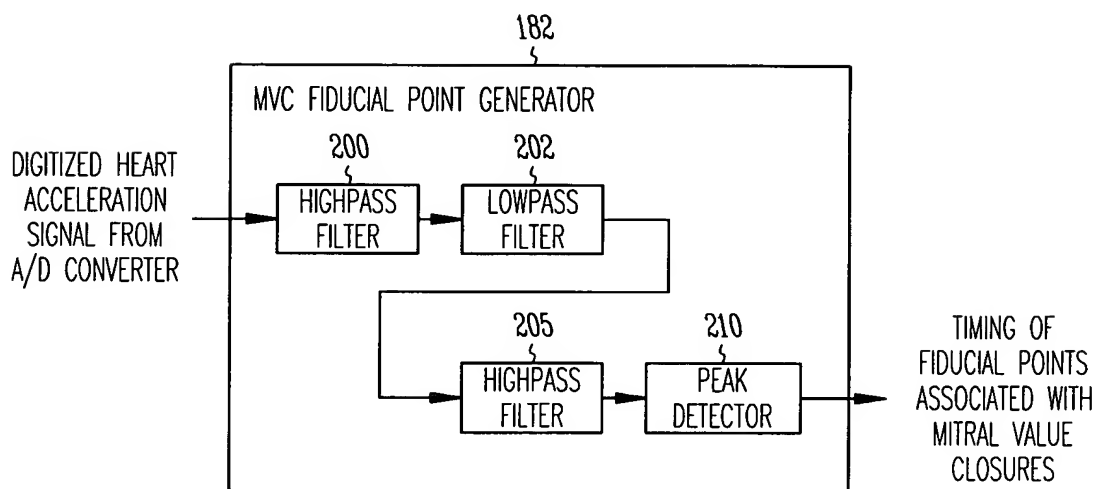SERIAL NO.: 10/099,865

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182

MVC FIDUCIAL POINT GENERATOR

DIGITIZED HEART ACCELERATION SIGNAL FROM A/D CONVERTER → 200 HIGHPASS FILTER → 202 LOWPASS FILTER

205 HIGHPASS FILTER → 210 PEAK DETECTOR → TIMING OF FIDUCIAL POINTS ASSOCIATED WITH MITRAL VALUE CLOSURES
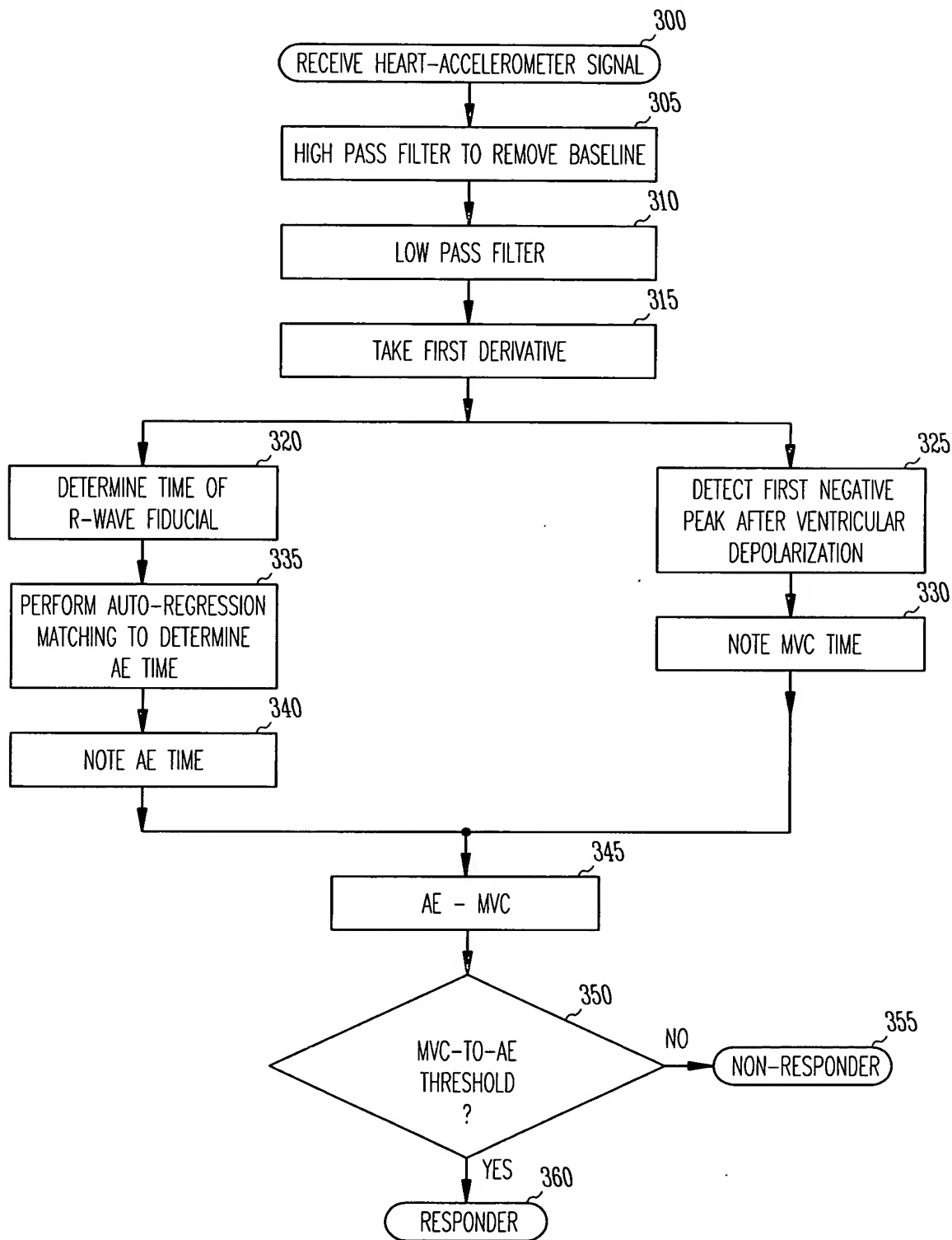
Fig.2

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SERIAL NO.: 10/099,865

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300
(RECEIVE HEART-ACCELEROMETER SIGNAL)

305
HIGH PASS FILTER TO REMOVE BASELINE

310
LOW PASS FILTER

315
TAKE FIRST DERIVATIVE

320
DETERMINE TIME OF R-WAVE FIDUCIAL

325
DETECT FIRST NEGATIVE PEAK AFTER VENTRICULAR DEPOLARIZATION

335
PERFORM AUTO-REGRESSION MATCHING TO DETERMINE AE TIME

330
NOTE MVC TIME

340
NOTE AE TIME

345
AE − MVC

350
MVC-TO-AE THRESHOLD ?

NO
355
(NON-RESPONDER)

YES
360
(RESPONDER)

Fig.3

TITLE: CARDIAC RHYTHM MANAGEMENT SYSTEM AND METHOD USING TIME BETWEEN MITRAL VALVE CLOSURE AND AORTIC EJECTION
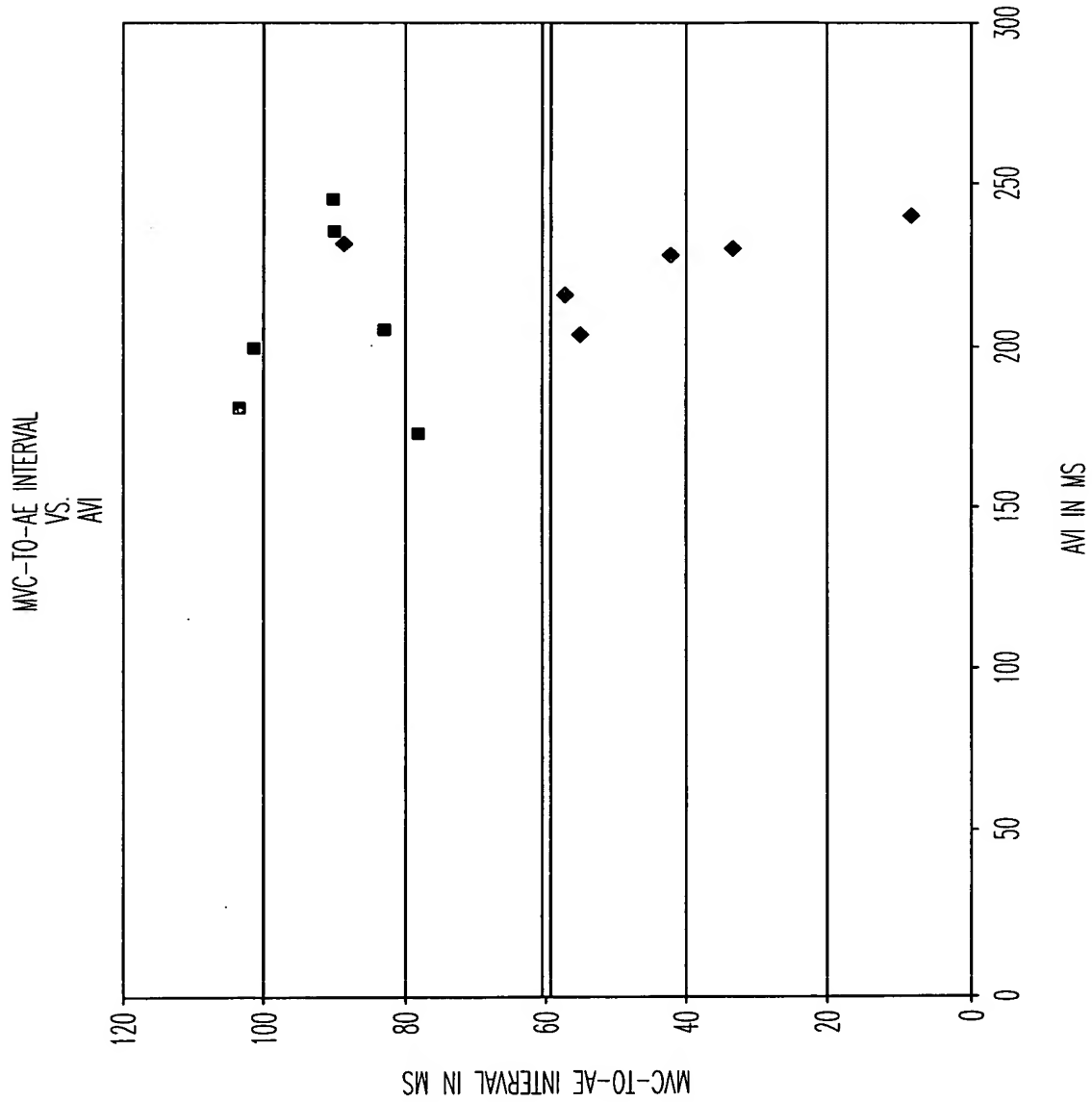INVENTORS NAME: William C. Lincoln et al.
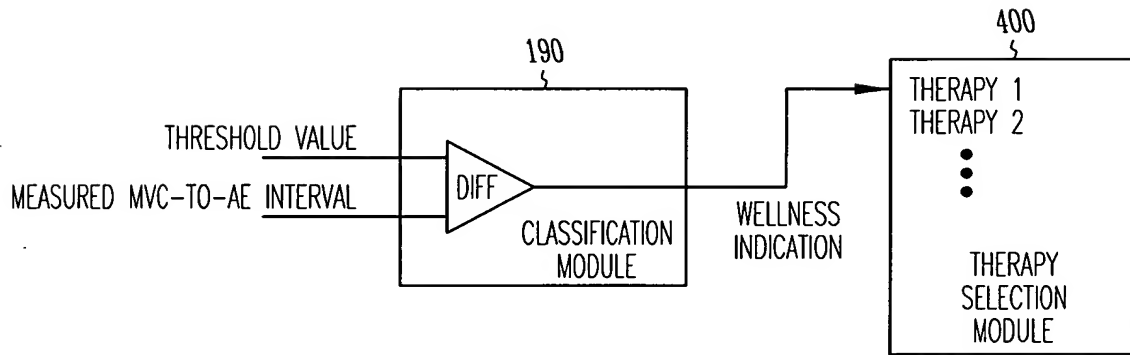SERIAL NO.: 10/099,865

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MVC-TO-AE INTERVAL
VS.
AVI

MVC-TO-AE INTERVAL IN MS

AVI IN MS

Fig.4

THRESHOLD VALUE

MEASURED MVC-TO-AE INTERVAL

190

DIFF

CLASSIFICATION MODULE

WELLNESS INDICATION

400

THERAPY 1
THERAPY 2

THERAPY SELECTION MODULE

Fig.5